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REMARKS/DISCUSSION OF ISSUES

This response is intended as a full and complete response to the Final Office Action mailed January 19, 2006. Claims 1, 3-6, 8-22 and 99-104 are currently pending. As explained below, all of the pending claims are patentable.

I. OATH/DECLARATION

A copy of the executed Combined Declaration and Power of Attorney previously filed on January 14, 2004 is being submitted herewith. Accordingly, Applicants request withdrawal of the objection to the oath/declaration.

II. REJECTIONS UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

Claims 1-22 and 99-104 stand rejected under 35 U.S.C. § 112, first paragraph. Regarding the "culturing" acts found on page 6 and the additional culturing acts described in the summary on page 7, Applicants submit that culturing cells (*i.e.*, either "the first and/or second living cell") "under culture conditions in which one or more compounds of the minimal set of transportable compounds is withheld," as stated on page 6, does provide adequate support for the claims. The claims relate to choosing a medium to maintain or not maintain cell development as desired. According to the culturing described at the end of page 6, a compound is withheld from the culture (*i.e.*, the compound is held back from being included in the culture) to prevent viability of the cells.

In addition to the sections of the summary relating to culturing of cells, the detailed description further supports this claimed application of the invention. To begin with, the bottom of page 9 states that since "details of numerous metabolic pathways can be elucidated by experimental work, it is now possible to analyze this information using models to derive useful information about conditions that support or prevent viability." For example, pages 34 and 35 describe applying solutions and partial solutions to inquiries described earlier in the specification for use "to formulate a

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medium in which the cell of interest is cultured." With these solutions, "(i)t is also possible to formulate variants of the medium that lack one member of the minimal set, e.g., to verify the determination made from the model." Furthermore, applications "can be used, for example, to selectively cultivate a particular bacteria from a patient sample that contains many bacteria, design an agricultural scenario that favors growth of a crop relative to opportunistic vegetation, and cultivate particular cell types from a multi-cellular organism" or "identify compounds that differentially allow growth of the cell for which growth is desired." Another application of the solutions and partial solutions of the inquiries of the metabolic pathways uses the solutions identifying reactions that are sufficient to enable a cell to survive "to formulate a medium in which the cell of interest is cultured."

Based on the foregoing, the previously added claim limitations relating to culturing cells is supported in the specification. The claims contain no new matter. Accordingly, Applicants submit that claims 1, 12 and 99 and claims dependent thereon fully satisfy the requirements of 35 U.S.C. § 112, first paragraph, and are patentable thereunder.

III. REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 1-22 and 99-104 stand rejected under 35 U.S.C. § 112, second paragraph. The relationship between the symbolic modeling and culturing cells is explicitly stated in the claim since the culturing act is performed in a medium selected based on at least one of the first set of precursor substrates and/or chemical reactions and the second set of precursor substrates and/or chemical reactions that are identified upon generating and evaluating the symbolic model. This relationship alone connects the metabolic pathway relating to activities taking place in any environment with the culturing act. The Examiner lacks any basis for requiring any further relationship such as indicating "that the cells being cultured are the cells in which the pathway is evaluated."

Claim 1 states "culturing cells in a medium selected based upon identification of one (emphasis added) of the first and second sets." Contrary to the Examiner's

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statements, both sets are therefore not required in the medium selection in the last two lines of the claim but rather only one set is required. Applicants further submit that the recitations in claims 12 and 99 regarding identifying a first set "and/or" a second set is not in conflict with "culturing cells in a medium selected based upon identification of at least one of (emphasis added) the first and second sets." In other words, the "at least one of" phrase is consistent with the identification of the first set and/or the second set.

The Examiner states that the phrase "the identified set of precursor substrates" recited in claim 2 lacks clear antecedent basis. In response, Applicants have canceled this claim without prejudice.

Therefore, Applicants submit that the claims distinctly claim subject matter of the invention. Accordingly, Applicants submit that claims 1, 12 and 99 and claims dependent thereon fully satisfy the requirements of 35 U.S.C. § 112, second paragraph, and are patentable thereunder. Applicants respectfully request withdrawal of the rejection and allowance of the claims.

IV. REJECTIONS UNDER 35 U.S.C. § 102

Claims 1-5 and 11 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Darnell et al.* (Molecular Cell Biology, 1987). In response, Applicants respectfully traverse the rejection.

Claim 1 recites that "the symbolic model comprises a Boolean function that returns a predetermined value if the set of target compounds is produced." This limitation was previously presented as dependent claim 7, which the Examiner did not indicate as being anticipated by *Darnell et al.* Further, *Darnell et al.* fails to teach, show or suggest generating a symbolic model that includes a Boolean function. Therefore, *Darnell et al.* fails to disclose each and every limitation of claim 1 and cannot anticipate claim 1 and claims 2-5 and 11 dependent thereon. Accordingly, Applicants submit that claim 1 and claims dependent thereon are allowable and request withdrawal of the rejection and allowance thereof.

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CONCLUSION

Applicants submit that all claims now pending are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issuance are earnestly solicited.

If, however, the Examiner believes that any unresolved issues still exist, it is requested that the Examiner telephone the undersigned at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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